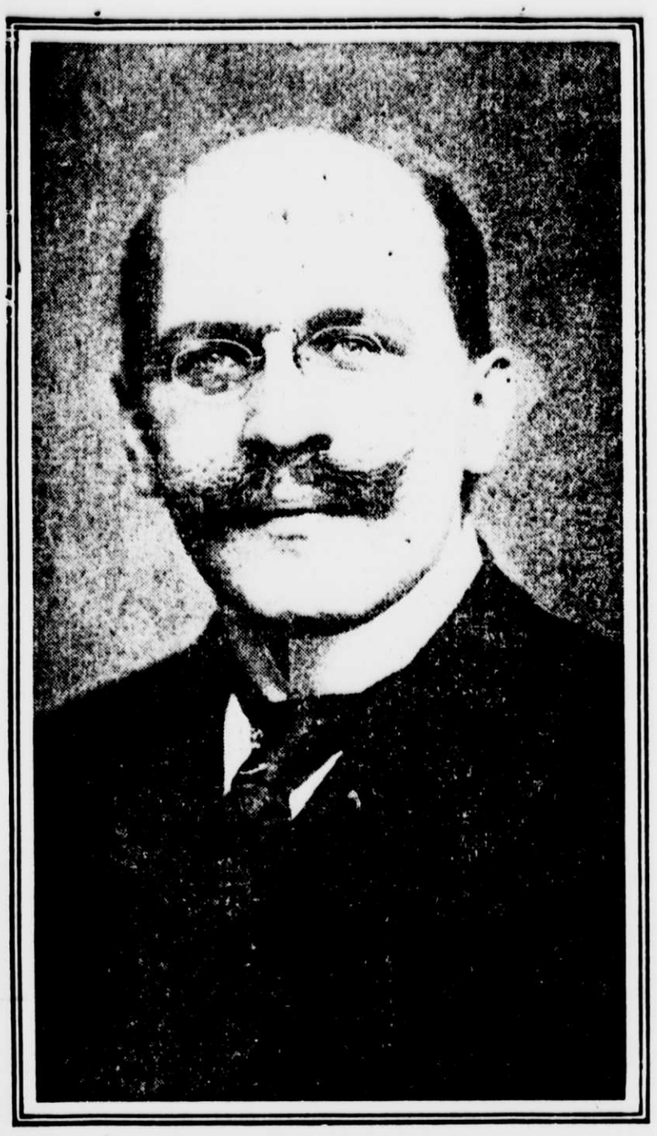
EFFICIENCY TESTS TO KEEP SQUARE PEGS OUT OF ROUND HOLES

Vocational Psychology Propose to Determine Just What Work Each Child Is Best Suited For—Will There Be Fewer Misfits in the Future?



Proffesor Hugo Muensterberg.

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K-P-V-M-R-U-S-T-D-X-H-C-Y-G-I-B-J-Z-A-N-F-Q-E-L-O-W

Professor Lough's memorizing test for students of typewriting and stenography.

ARE there going to be fewer vocational misfits in the future? Are more of the younger generation and still more of the generations to come to be led from their childhood into the paths of application for which nature has peculiarly equipped them? Dr. Leonard P. Ayres, director of the division of education of the Russell Sage Foundation, optimistically expresses himself in the affirmative.

Do you realize the significance of this? You no doubt have knowledge of plenty of people that are to-day dissipating the best of their energies in callings for which they are manifestly quite unsuited. Most of those persons have neglected capabilities which, if directed into the right channels, would produce excellent results. By the new plan it is hoped to lessen the number of such misfits.

Of course as the problem is presented to-day in the adult it means discovering for these matured minds adaptability for some specific employment, and this is rather the opposite of the work which Dr. Ayres proposes. What he wants to do with the grownup is to find places for persons, rather than persons for places. Do you grasp the difference? Something in the latter direction has already been done by the psychologist and the employment bureau of a number of big industries, and these efforts have proved so encouraging that they constitute a suggestive foundation upon which Dr. Ayres and his coworkers expect to build for social betterment and the general improvement of vocational efficiency.

When Dr. Ayres took this problem up not long ago he cast about to find out what fellow workers were doing both here and abroad, and in his search for definite data and lines of research he went to Europe himself. He had no difficulty in discovering people who had heard of similar investigations, but somehow it was always some one else who had been in actual touch with these endeavors, and the net result of his travels was the astonishing disclosure of how little was known of this phase of vocational guidance.

Out West Dr. Ayres found in a very large manufacturing establishment of many departments a woman in charge of the bureau of employment. Her administrative function was primarily to size up applicants for employment and to assign them to the departments for which they seemed best suited. Usually her examination consisted of a brief chat and an intuitional appraisement of the individual, and it is said that she was almost infallible in her discernment. It is not to be wondered that she drew a monthly salary of $1,000; she was probably well worth every cent of it to the people she served, but still her skill was practical rather than scientific, and she probably could not have given a satisfactory reason for her judgment or classification of the hundreds of employees she passed upon.

She had what might be called the instinctive gift of the diagnostician, or, in other words, the faculty of the old time family physician who knew just what ailed us and prescribed aright for our various maladies. That dear old man brought us into the world, knew our parents intimately, was familiar with the family traits, and unconsciously absorbed an understanding of us which was of value in the hour of pain or physical distress. Why, then, as Dr. Ayres looks at it, shouldn't we have vocational family doctors who shall be able to diagnose our native talents and find for us the best fields for their employment?

Both S. E. Thompson and Prof. Muensterberg have devoted some time to psychological tests in connection with applicants for certain employments. Mr. Thompson's experiments were in selecting girls for the work of inspecting for flaws the steel balls intended for ball bearings. The occupation calls for quick and keen perception associated with rapid action. The interval between perception and action is what the efficiency engineer calls the reaction time, and Mr. Thompson rejected the girls who showed sluggishness.

The practical outcome of his tests was that he was able to pick out thirty-five girls who could do the work that formerly took 120; the accuracy of the work was increased 66 per cent.; the wages of the girls were doubled; the working day shortened by two hours; and the factory profits enlarged.

Prof. Muensterberg devoted his kindred energies to testing street car motormen, being inspired by a desired to lessen the 50,000 accidents annually for which some electric railroads have to pay a sum amounting to 13 per cent. of their gross earnings. His tests called for a ten minute period for each individual, and he found that 25 per cent. of the applicants ordinarily taken on were not fit for that particular calling.

Again, he did somewhat similar work for one of the big public service corporations which employs about 23,000 operators. His efficiency scale was found to tally substantially with the useful service of the employees. But both Prof. Muensterberg and Mr. Thompson were dealing with the other aspect of vocational guidance—they were not seeking to find places for persons but persons for places. By far the greater social question is that of directing each individual to one of the 10,000 occupations open to the endeavor of civilized man.

Here in New York, Prof. James E. Lough of New York University has been working alone a somewhat different line. He has tested elementary students of stenography and typewriting to select those having sufficient ability to promise success. Many typewriters and stenographers are turned out by business colleges and kindred institutions who are really unsuited to commercial requirements, and they worry through their period of training only to end in the industrial scrap heap so far as that calling is concerned. Professor Lough's tests are designed to measure the subject's ability in habit formation.

The experiments are not yet ended, but results up to date warrant the conclusion that his method makes it possible to separate the fit from the unfit candidates. One of the tests consists in a horizontal arrangement of the alphabet in a single line, and underneath each letter is an arbitrarily associated dissimilar letter. When the upper letter is called the student is expected to remember the proper associtae letter and to name it. In a similar way he must be able to give the appropriate stenographic symbol.

The result of each examination is plotted upon a chart or scale. The diagram which shows progression, even if interspersed with steps or plateaus of non-advance for varying periods, is considered better than an ultimate attainment of similar efficiency interrupted in its rise by drops or lapses in mental alertness. All of this sounds something like what the engineer does when he tests a steam engine to rate its effective horse-power, but it shows that there is a graphic way of describing mental capabilities, and this logically means that a way may some day be found to estimate these capabilities early enough in life to lead lads to professions or pursuits in which they will do best and be happiest in their achievements.

In speaking of this latter line for psychological tests, Dr. Ayres says: "When the object is to select a position for a person, the problem is to discover which one of a vast number of possible sorts of work the person is best qualified to do. The difficulty arises from the almost unlimited number of possible alternatives.

"At the present time we possess a rudimentary knowledge of the qualifications demanded in four occupations—those of inspector of bicycle balls, motorman, telephone operator and typewriter. Moreover, in the cases of at least two of these occupations the tests required for even a rough sorting of the applicants are numerous, long, complex and must be given by a trained psychologist.

"Now the total number of separate classes of gainful operations listed in the occupational index of the United States Census is 9,326, and many of them should be split into several subdivisions. This reveals something of the magnitude of the task of sorting children out according to their vocational destinations.

"Nor is the mere number of our occupations the only difficult feature to be faced. Modern industry is subdivided into occupations of which teachers and psychologists have as a rule slight knowledge. For example, if we open the occupational index at S we will find a list like the following:

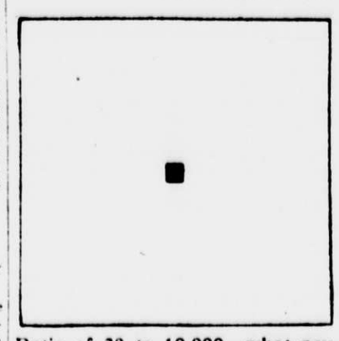
shoover	skidder	slaughterer	slugger
shoveller	skimmer	sleever	smelter
sliker	skinner	sliver	smither
sluger	skiver	slipper	smoker
sizer	slasher	slitter	smoother
skeiner	slater	slubber	snapper
			soldier

"Now, when we propose to guide children into vocations we must remember that large numbers of them are going to just such vocations as these. It is true that only a part of the 9,326 gainful occupations are available to the children of any one locality. It is also true that the same sorts of tests would undoubtedly serve for many different occupational examinations."

Perhaps nothing illustrates more graphically the present relation of vocational guidance and psychological tests for the separating of the fit and unfit than a piece of dotted fabric which Dr. Ayres uses as an illustration. This blue cloth, with its white polka dots, is about eight feet long and five feet wide, and there are just 10,000 little white discs upon its surface, each one of them representing a possible vocation.

In the middle of this bewildering chart is a small rectangular space containing twenty-nine dots, which stand, for the present total of occupations for which the psychologist has made tests of varying scales of elaborateness. The contrast between this group of twenty-nine and the remaining 9,971 discs pictures the magnitude of the problem which these students of human efficiency have set themselves to unravel. And yet, bewildering as the outlook may appear to the average layman, still the work already done is sufficient for inspiration and enthusiasm.

Dr. Ayres says: "We must remember that we are using a false analogy when we refer to fitting square pegs into round holes in talking of vocational misfits, for people and positions are both plastic, not rigid, and much mutual change of form often takes place without injury to either person or position."



Ratio of 29 to 10,000—what psychology has done toward solving the problem of guidance in the entire field of occupational activity.

The expression, "He is a man of great adaptability" is often heard, and, if that characterization is justified, then Dr. Ayres is quite right in speaking of people as plastic.

But you will probably retort that this does not prove positions to be possessed of the same moulding qualities. Just think a moment. Human skill in any employment does not remain constant. Once in a while the inventive genius or the creative mind, call it what you will, approaches the work of the calling with a fresh mind. His attitude is somewhat akin to that of the man on the housetop viewing the movements of a crowd beneath him as compared with that of the individual in the jostling throng. He takes in the broad actions of the multitude and is not concerned with the struggling person and his walled in vision. What is the result?

Why, the new man or inventor makes suggestions and he asks questions which to the older craftsman seem revolutionary or even foolish; he is not hampered by a long standing custom. Perhaps the novice or innovator has a chance to use the established instruments in another way or to make slight changes in their form or the sequence in which they may be employed. The net result is that the work thus receives a measure of added efficiency and a better product or a larger output follows.

No more convincing example of this very point can be given than the work accomplished by the Taylor system of scientific management in its application to the mason. As Dr. Ayres states the case:

"The trade of bricklayer, practised by millions of intelligent artisans, has remained almost unaltered since the days of primitive man. But scientific management steps in and asks, 'Why lower a hundred pounds of human flesh to pick up each two pound brick? Why toss the brick four times to find its best face? Why tap it three times to get its proper level? Why stand in a position that requires half a dozen movements when one will suffice?' And science makes answer: 'Build a platform for the bricks adjusted to the height of the work; lay the bricks on the platform with the best face out; mix the mortar so that one tap will suffice; and take such a position that five movements accomplish the same results that formerly required eighteen? The result is that each workman lays each hour as many bricks as he formerly laid in three hours."

The only material departure from previous facilities is the platform. These examples might be multiplied, but one serves the purpose, and the practical commercial end of psychological tests in vocational guidance has been amply demonstrated by the beneficial results obtained by S. E. Thompson, Prof. Muensterberg and Prof. Lough in the occupations already referred to.

This problem of promoting human efficiency is, admittedly, an exceedingly complex one, and the trained observer is fully alive to this and does not in any sense make light of the task ahead. Hasty judgment may be harmful instead of helpful. A case in point is that of a youth described by Dean Sumner of Chicago.

This boy played truant whenever possible, and when forcibly led to school shirked his lessons persistently. During the recitation periods and the recreation hours he violated the rules in endless ways, and his influence upon the other boys was demoralizing. He was apparently vicious minded and seemingly incorrigible. He gave every evidence of being a fit subject for a reformatory, and, acordingly, he was sent to one of the institutions for juvenile offenders.

There he was moved from grade to grade, always downward, as his wilfulness became more and more marked. While under this surveillance, which included school training, part of his instruction consisted in drawing lessons, and this seemed to be the only subject that interested him. However, his general conduct was so bad that the administrative authorities decided that he was probably unsound mentally and were ready to send him to an asylum for the juvenile insane. At that critical moment, his drawing teacher begged for indulgence and asked that the boy be left in his charge for a while longer. This was granted.

To make a long story brief, that boy developed thereafter hour by hour along normal lines, and his love for drawing absorbed him so completely that he either forgot or lost the desire to be perverse. His advance in this study led some philanthropists to finance his further work in another school devoted to art training entirely. The youngster progressed with astonishing rapidity, won a scholarship, redeemed himself, and to-day is an exceedingly useful citizen.

Now, the question the psychologist asks is: Can't the native talent of a nervously organized person like this youth be discovered early enough to guide him and to prevent his mental and moral undoing, as was so nearly accomplished in toto in this instance?

The love of the graphic and a native gift of expression in pictures, symbols or diagrams are among the earliest manifestations of the juvenile mind, and there are many of us to-day who in our maturity can express ourselves better and get at the understanding of another more readily by the use of sketches. In short, it is probably true that all of us can absorb the story of a picture and remember it longer than similar information by word of mouth or by written or printed sentences.

Dr. Ayres believes that this very fact will lead in the course of the next few years to a revolutionary method in all educational work, and that the child student will learn more and retain his knowledge better because of the graphic mediums that will be employed in the schools and colleges. In proof of this he cites the instance of a pamphlet prepared by him late last year and entitled "A Comparative Study of Public School Systems in the Forty-eight States." In that brochure Mr. Ayres used principally diagrammatic presentations of his data, and copies of the publication were sent to all of the State Legislatures.

Dr. Ayres says: "The vocational psychologist is bent upon reducing mental qualifications to certain allied standards and laboratory tests are actually under way in this direction. It is the hope of these investigators that they may get down to what might be termed the primary elements of human efficiency and coordinate these so that a child or a man of qualifications or impulses, susceptible of identification, may be led toward any one of a number of suitable lines of education or employment."

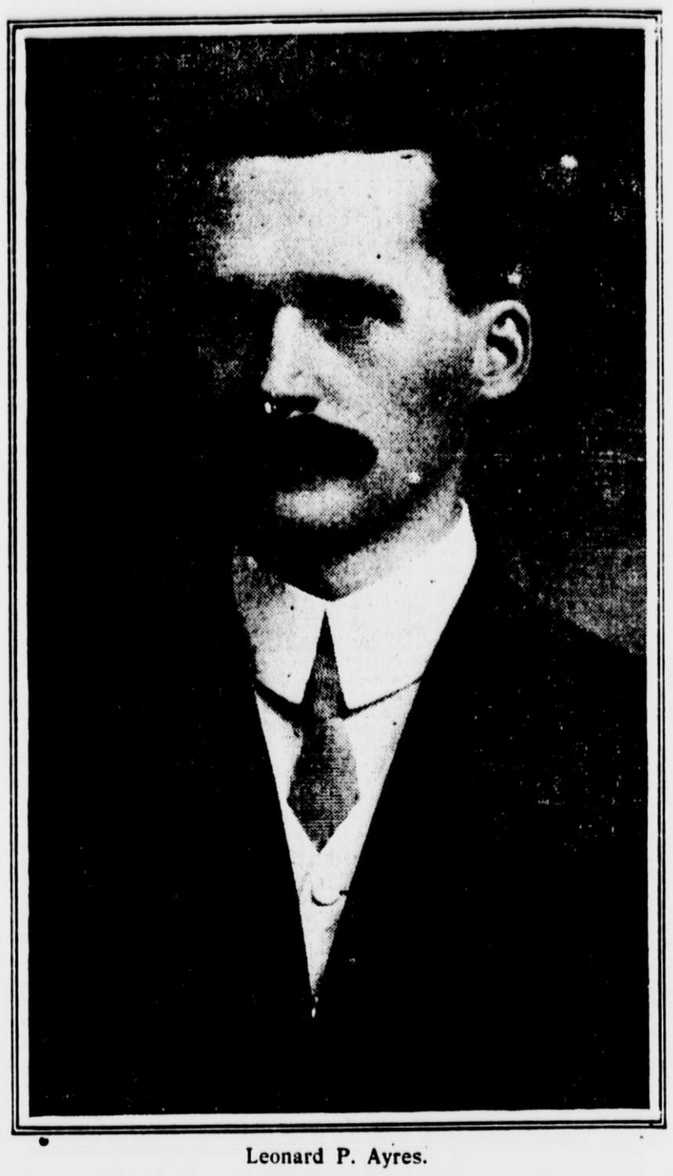
This will undoubtedly mean years and years of painstaking study and research and tabulation, but in the end it may change the entire social system so far as the lifework of the individual may be concerned. To a very large extent to-day most people fall into vocations instead of seeking them with a knowledge of their particular fitness, and the average human being is indeed lucky when his career conforms to his native bent.

The plastic nature of our talents is going to make it easier for the vocational psychologist to guide us hereafter, and it will make it possible for more of us to be useful in our natural environment. Each neighborhood has its industrial limitations, and the bulk of population of any town or city remains largely localized; relatively few shift to other communities. Therefore it will be necessary to sum up the fundamental ruling capabilities of the individual and choose from the available occupations the ones in which each person can be swung for action with the least violence to the dominant gift. There may be several useful lines of activity; here is where adaptability counts, and the aim must be to lead to that one which will awaken the most enthusiasm in each day's work.

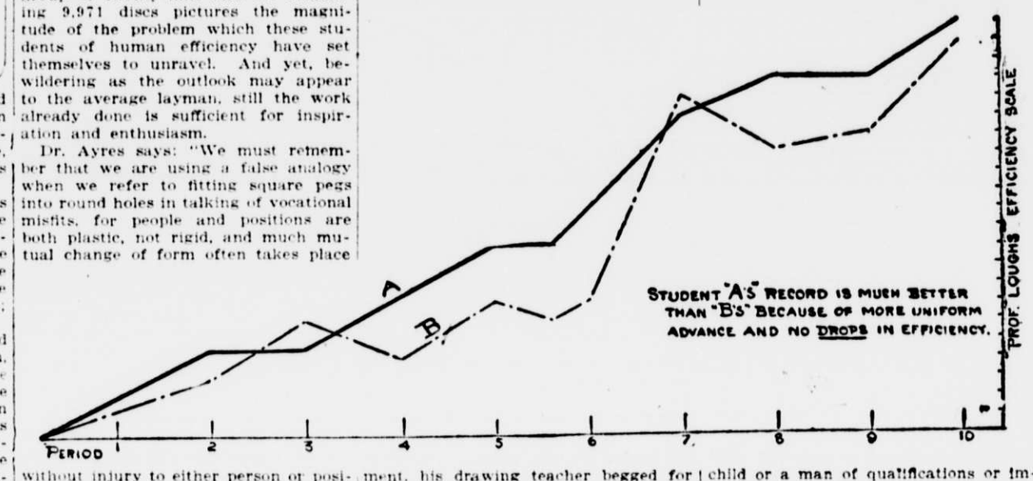
Of course this question has been considered so far from the viewpoint of the individual, but the ultimate object is one of communal benefit. First, the employer realizes a difference in the character of workmanship, the satisfaction to its patron and the quantity of the output in a given number of hours. These have their reflexes in the shape of content among the artisans, a better atmosphere in the shops, more pay for the worker and shorter hours of labor.

In the community the social relations become more intimate, more friendly, and a sense of common obligation and allied impulses toward the general welfare grows in corresponding proportion. The square pegs may all seem to be in square holes and the round holes likewise appropriately filled, but this situation will be discovered upon analysis to be the consequence of adaptability in which the moulding process has been of a twofold nature.

Starting with the child, these results will be easier of attainment, and that is what Dr. Ayres has essentially in mind, while the work of Muensterberg, Thompson, Lough and others has been mainly directed toward the fairly mature or the adult mind. Of course people are all more or less flexible until they become too set in their ways through advanced years or by reason of fixed habits and the compelling nature of their environments, and Prof. Ayres believes that the fits and misfits of the grownups can be adjusted, though not so easily, by the guidance of the psychologist.



Leonard P. Ayres.



Riccardo Martin Discusses Trotting and Dress

RICCARDO MARTIN, most distinguished of American tenors, who has been heard many times in various roles at the Metropolitan Opera House during the season just ended, has consented to give his views on fads prevalent in America, which he considers have a powerful effect upon modern civilization.

"The ease with which fads are created in this country would seem to a casual observer to indicate that superficiality controls sound thought," said Martin. "For instance, our new styles of dress are ridiculed at first. Only the extremists adopt them and through their persistency the public at large, in the course of a few months generally, succumb to the dictates of Dame Fashion and every one dresses approximately alike if purse permits.

"In a similar way half fledged enterprises and novel ideas spread and grow, needing only the advertisement of popularity. That which is new or up to date is most desired by the fashionables in every city and old ideas are discarded over night. Fads seem immune from judgment as to their merits. Novelty is their passport and there seems to be no stronger recommendation."

The tenor lounged in a low, broad chair and puffed now and then at a dark hued panatella, which he declared was habitually his single smoke of the day. Moderate cigar smoking, he replied to a question, did not impair his voice, but cigarettes, he sad, were decidedly harmful.

"While I would scarcely go so far as to say that whatever is popular is right in the public view," continued Martin, "I do believe that too many people are blind adherents to the unfortunate maxim, 'When in Rome do as the Romans do.' It is surprising how many persons appear to take these words literally and follow the advice with implicit faith that such is the safe course. This is a very dangerous policy, for given an age of unrestraint and degeneracy, or a tendency in this direction, it would mean that every individual would join the march to extinction and oblivion. No matter how dangerous the fad, it would be embraced by young and old of all classes, because all follow the example of the well to do, who exert a prime influence over popular fancy.

"Nothing illustrates the indulgent attitude of modern society quite so forcibly as the success of the turkey trot and similar dances. Despite the attacks of the clergy and many well known society women and thinkers of various classes, the offensive dance at the outset attracted young people of both sexes. Because it was the latest thing it seemed smart, and, in the exercise of choice between two evils, namely, being regarded as conservative and out of date or frowned upon by their elders, they brooked the latter, clinched madly and started the whole world scolding, watching and grinning. And now staid couples of 60 years are teaching it to their friends, and dancing has become more popular than ever before.

"Where are we coming to?" Martin knocked the ashes from his cigar into a tray. "Why, don't suppose for one minute that the fickleness of Dame Fashion hasn't its saving grace. Would it not be most unnatural if an utter extreme in dancing were to follow in a season or two? The ballroom contingent will be back at round dances and holding each other at arm's length again before they know it. Let some neatly dressed couples, say two or three, start in arm's length dance at Newport this summer and New York and the whole country will all be doing it by December. To put it colloquially, our young swells cannot stand having any one 'put one over.'"

The singer was asked what he considered the cause of New York's susceptibility to fad.

"The atmosphere of enterprise—progress, so fast that we do not have time to weigh and reflect. If time is money the world over, it must be ten times as valuable here as it is anywhere else. The tendency to live beyond means, the common effort to appear prosperous, the atmosphere of freedom and equality and the congestion of the population together militate against conservatism.

"We will learn probably by our own bitter experience. The youth who is prodigal and spends his earnings on trivial things, living too fast and thinking of material possessions and excitement rather than noble achievement, some day learns his folly. Fortunately better judgment comes with years and he finds out that he can wander back on the safe road. When it comes to a consideration of some of our cheap amusements, silly fashions and wild extravagances, America seems like the wayward youth.

"There are great and powerful traditions in this country which despite the rapidly changing population stir our citizens to patriotic and sacrificing endeavor when the occasion calls. It is to be hoped that great calamities will not be needed in order to put us face to face with realities. We have had awful disasters in the last few months sufficient to stir the consciences of every one.

"The greatest thing to be feared is pessimism. It gives reign to reckless waste and viciousness and is opposed to self-respect. There is so much good being done in New York, throughout the country and all over the world that only ignorance can be responsible for a disbelief in the constant betterment of civilization. Of course there are occasional setbacks in a locality, but the tide of opinion is strong. The press is mighty.

"There is comfort in the reflection that our population is huge, and when we see one class getting rampant over a new fad another class is devoted to an entirely different custom. There are many conflicting sentiments and theories in cosmopolitan New York. Incidentally the greatest common signs of preference exist in mere clothes, an outward indication of the degree of conventionality found in each individual. I have always taken exception to Shakespeare's advice, administered through Polonius, that clothing should be 'rich but not expressed in fancy.' The more people dress alike the more they will think alike and the less they dress alike the less they will think alike.

"The trouble with our voters, our leaders of fashion, our physicians and others is that there is not enough independent thinking, and if we were to help the individuality of each person in a community by allowing him to dress as most becomes him, despite the efforts of cloak and suit makers to economize in styles, we would open the gates to much valuable new thought. Every one should have his own peculiar kind of clothing. He should be permitted to wear anything decent that he chooses for himself, instead of being subjected to rude stares, mean criticisms and open derision. Our conventionalism in dress in the last analysis is villainous narrow mindedness.

"I do not believe one should be allowed to wear apparel that would obstruct progress in the streets or take up too much room generally, but I am heartily in favor of such leniency as will permit men and women to dress in a more hygienic and comfortable way. Our manner of dressing is ludicrous. I'm not referring merely to tight skirts, which prevent proper walking; men and women alike have been wearing pinching shoes for generations, which do more harm to the body than tight skirts. Tight corsets do the human race a great deal of harm, but high cut, tight fitting vests and too heavy clothes, added to overheated rooms, produce results almost as deplorable.

"Modern civilization needs scientific, sanitary, psychological dressers, men and women to preach the gospel of proper clothing—clothing fit for each and all of us, guaranteed to match the complexion, fit the form, and protect the body; enable us to walk, ride or jump, if need be, and be properly distinctive in deference to individuality. These clothes missionaries should go into every nook and corner at the four historical corners of the earth and spread the glad tidings of sensible suits.

"Every now and then some writer comes out for a readoption of knickerbockers, silk stockings and ruffles for men. What is the use of it? Some of the wearers of this picturesque garb would look superb, but quite as many would want to hide in hallways and cellars as soon as an attractive girl approached along the street. We should all dress exactly as we choose and as best becomes us, rather than submit to the styles dealt out by self-imposed, money making censors, who are none other than the manufacturers themselves. They should cater to us rather than we to them.

"I might add that I think a certain uniformity in full dress is desirable, especially on the part of one sex at least. As it is now the black suits and white expanse of shirt of the men afford a good background for the varicolored dresses of the women. For informal dressing, however, I consider that individuality should have full reign. The idea of people dressing according to their vocation, so far as applied to practical ends and the bodily convenience and comfort of individuals, is well founded. Those whose occupations entail largely politeness and attention to the majority should be clad uniformly, but the majority should not be thus restricted.

"What man does not feel a sense of weakness and guilt when he buys a hat with a funny little bow at the rear like the propeller of an aeroplane simply because a lot of other men are wearing such? What after all is the value of appearing up to date when you pass among crowds of strangers—or among intimate friends? If nobody looked fashionable nobody would be puffed up about his appearance or be slighted by the superior appointments of his neighbor. If every one dressed as best suited him, regardless of prevailing fad, he would always look well and there would be no vain, unceasing effort to keep pace with some one else who has more of the material possessions of life. The question resolves itself ultimately to one of mere imitation—the enemy to individuality. To the weak imitation may be necessary, to be sure, but what is the use of openly admitting weakness? Most of us will have to plead guilty."